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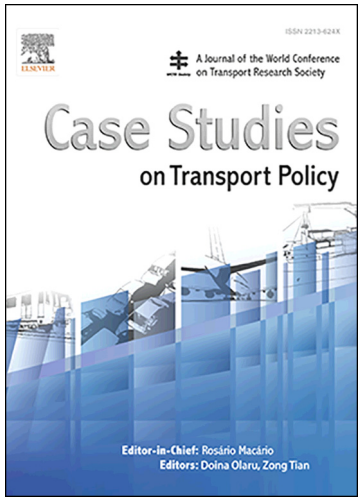

River-Based Public Transport: Why Won't Paris Jump on Board?

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River-Based Public Transport: Why Won't Paris Jump on Board?

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Abstract

Given the magnitude of transport-problems in many large cities, the potential of rivers to serve as transport arteries is being recognized once again. However, some world cities, such as Paris, have failed to maximize their river potential. The Seine remains underutilized by mass commuter ferries serving the local population. Why, in the modern era, has Paris not taken advantage of its river for commuter transport? Will it do so in the future? This article answers these questions, which are important at the present time of grave sustainability concerns. The identified barriers include: (a) *funding constraints*; (b) *competition by other modes*; (c) *lack of political and institutional will*; (d) *lack of opportunity*; (e) *local legislation*; and (f) *technical issues*. The first three are common worldwide while the last three are specific to Paris.

Sous le pont Mirabeau coule la Seine, et nos amours…

-- Guillaume Apollinaire, 1912

I. Introduction

Historically, major cities were built near rivers. There are many reasons for this, but a principal one is that rivers allowed for water transport. Prior to the invention of trains and cars, water transport was much faster, and often cheaper, than land transportation, which relied on carriages drawn by animals. Cities with access to water were in a much better position than landlocked cities to develop trade with neighbors and thus sustain their economy (Kostof 1992).

In the mid-19th century, a series of factors conspired to lead to the decline of water-based transport. One was the shift in primary energy sources from wood to coal, which boosted the use of railways. Another was the emergence of bridges and tunnels that replaced most cross-river services. The pollution, diseases, and environmental degradation of rivers due to rampant industrialization further contributed to the demise of waterfronts. In the 1950s, the automobile boomed and abandoned riverfronts became premium locations to build concrete highways. For decades to come, these stood as polluted, noisy, and impassable barriers between the city and its river. By the 1970s, many cities had turned their backs to their rivers (Freemark 2010).

Now, at the height of the urban revival movement, cities are rediscovering their river assets. With de-industrialization and the rise of "containerization" in shipping, upriver ports have been replaced with large downriver facilities able to accommodate large ships, thus freeing up urban waterfronts (Tanko and Burke 2017). Environmental awareness, globalization, and an emphasis on "quality of life" has triggered waterfront revitalization movements, first in the US, then in Europe and the rest of the world (Lechner 2006). These projects are taking place in derelict docklands, which are re-emerging as gentrified and densified commercial and residential hubs that attempt to bring "blue space" closer to urbanites (Romain 2010). Places are consciously reimaging or rebranding themselves as "river cities" in order to promote tourism and deliver a unique experience to visitors (Tanko and Burke 2017).

Given the magnitude of transport-problems in many large cities, the potential of uncongested rivers to serve as transport arteries is being recognized once again. World cites as far apart as New York and San Francisco (North America), Sydney and Brisbane (Australia), Bangkok (Asia), and London, Copenhagen, Gothenburg, Hamburg, and Stockholm (Europe) have

already put in place linear ferry commuter services, which have been rather successful (Camay et al. 2012; Soltani et al. 2015). Their introduction has been assisted by recent advances in maritime technology, including higher speed, high capacity, and low wake vessels that are more suitable for urban use (Tanko and Burke 2017). Now Abu Dhabi, Washington DC and Melbourne are considering the introduction of ferry services.

Meanwhile, other cities, such as Paris, have failed to maximize their river potential. The Paris basin is crossed by the Seine, a major navigable waterway. In terms of land use, the latest masterplan identifies riverine suburbs as future growth areas. However, in terms of transport, public authorities have focused on rail- and road-based options. The largest European transport mega-project, Grand Paris Express, which was launched in 2014, does not include river transport solutions.[1] The Seine remains underutilized by mass commuter ferries serving the local population.

Why, in the modern era, has Paris not taken advantage of its river for commuter transport? Will it do so in the future? This article aims to provide answers to these questions, which are important at the present time of grave environmental, economic, and social sustainability concerns. A discussion of this neglected mode, and with a focus on future implementation, will close a gap in the academic literature. To provide greater insight into the barriers preventing Paris from taking advantage of the Seine, the Parisian case study is benchmarked against London, a city in which urban passenger ferry services have boomed in recent years. Among the places with successful contemporary ferry systems, London is the most similar to Paris in terms of size,[2] culture, and global presence. Moreover, the two cities are "competitors" but the respective planning authorities have been known to examine and borrow each other's policies from time to time. Benchmarking has revealed issues that would have been ignored while focusing on a single case study.

II. Literature Review: Features of Contemporary Urban Passenger Ferry Systems

The key characteristics and available information on existing systems have been summarized by other authors (see Tanko and Burke 2017; Burke and Sipe 2014). Existing studies have

[1] A casual observer might believe otherwise, given the traffic generated by ocean liners carrying freight and by tourist cruise boats. Recently much fanfare has been generated around the futuristic proposal of Sea Bubbles: small, electric or solar vehicles which can fly, float, and sail on the river. However, even if put into use, Sea Bubbles will carry only four passengers at a time.

[2] With 7 (vs. 8.6) million inhabitants in the metropolitan region.

found that systems vary by vessel and terminal type, by service frequency and scale, and by the urban context in which they operate. Vessels range from high speed catamarans to monohulls, with capacity between 60 and 298 passengers. Some can even accommodate bicycles on board. Systems can have just one main route which runs parallel to the shore or criss-crosses the river, or a network of complementary routes with transfer points. The total route length varies between 6 and 31 km.

The adoption of urban passenger ferry systems can benefit the public and private sectors alike, as well as users. From the perspective of the public sector, waterborne transport systems, especially those which avail of new, fast technologies, can help alleviate road congestion (Camay et al. 2012). Contemporary ferries are more eco-friendly than their land-based counterparts. Customized technologies make them more fuel efficient and reduce engine exhaust and noise pollution. The use of green technologies, such as electricity and hydraulic propulsion, is increasing (CEREMA 2016).

Ferries employ an existing natural element (the river) and thus need little extra space or infrastructure. This allows for greater service flexibility than rail. New stops with adequate docking facilities can be added much more easily along a ferry route than along a metro route (Thompson et al. 2006). However, it must be noted that, if ferries are purely a private sector innovation, the systems risk developing separately from other public transport in the city. As such, they may be poorly integrated, and may struggle to modernize (Tanko and Burke 2017).

In crisis situations, water transportation has proven to be invaluable. For example, in the aftermath of 9/11 and Hurricane Sandy in New York, ferries were used to provide assistance to isolated city dwellers. Ferries are more resilient to natural hazards due to their water-based location (Sipe and Burke 2014). However, where ferry systems are on rivers (rather than harbors or estuaries) they are very prone to flooding and less resilient. For example, in Brisbane, key terminals were out of operation for many months after the 2009 floods when all other city transit was back in operating within days.

A benefit for the private sector is the spurring economic development, particularly residential and commercial redevelopment – both small and large scale. For example, a recent study in New York concluded that ferry services have had a positive impact on property values (which have increased up to 8%) and the pace of development along their route (NYCEDC 2013). In Bangkok, terminals are being modernized and equipped with stores, eateries, and ATMs. In fact, many urban linear ferry systems would not have been implemented, had they not served an economic function, in addition to transporting people (Tanko and Burke 2017; Sipe and

Burke 2011). Recognizing ferries' role in stimulating land value uplift, some developers have been willing to pay for terminals and even subsidize fares (Tanko and Burke 2017).

From the perspective of the public, ferries can provide pleasant, safe, secure, quick, and comfortable journeys. Many regular users attach a greater amenity value to linear ferry transport beyond its utilitarian transport function. Ferries have also been used to provide strategic access to "transit deserts" – for example, low-income areas – that are not served by existing land-based services (Tanko and Burke 2017). In this case, ferries fill a void, without competing with other public transport operations. In some cities, ferries have become an icon and a tourist attraction – whether purposefully or not (Tanko and Burke 2017).

Notwithstanding these advantages, major barriers stand in the way of ferry systems' adoption in some river cities. If extensive and efficient land-based transit options exist, fierce competition with those other modes precludes the inclusion of ferries in the transport system. Ferries are at a disadvantage compared to heavy rail as they can offer less frequent services and insignificant savings in travel time (Camay et al. 2012). At the same time, ferries have a high cost of operation. Estimates for London indicate that the operating costs of ferry services on the River Thames are around £8.4 per km compared to £2.5 for buses and £35 for the subway (the Tube). Per unit, ferry services require more staff and fuel than buses and metros, and therefore, their operation requires financial subsidies from public transport authorities (Buchanan et al. 2009). Often, a strong political champion is crucial in triggering policy change in favor of ferries (Tanko 2015).

Moreover, ferries can only serve land-uses which are adjacent to the river. This limits their impact and catchment area. Clearly, the success of new waterfront development projects does not completely rely on their access to a ferry terminal, epitomizing a perfect ferry-oriented development. Developers and home buyers will have other motivations for choosing a riverine location, including nice, open views and pleasant summer breezes (Sipe and Burke 2011). But, while piers in themselves might not "cause" future development, the transit option that they offer certainly increases their attraction. Therefore, in some riverfront neighborhoods which already have a population threshold sufficient to sustain an effective service, commercial developers and businesses have lobbied for, and participated in, the funding of new pier infrastructure, as noted (Buchanan et al. 2009; Sipe and Burke 2011). In others, such funding (expected from the public sector) has not been forthcoming.

A few strategies have been proposed to tackle these issues. One solution is to route ferry services so that they address the needs of both commuters and tourists. To ensure coordinated

routing, scheduling, and ticketing, river services must be integrated with the overall regional transport strategy and planning (Sipe and Burke 2011). On a broader scale, ferry services must be integrated into the overall economic plan of the city to ensure their economic viability (NYCEDC 2013). As with other planning initiatives, stakeholder engagement and sensitivity to the local context are important. Marketing and branding has a prime role in captivating city dwellers in a way that shifts their preferred transportation mode towards ferries (NYCEDC 2013).

III. Methodology

The historical backdrop of waterborne passenger lines in Paris and London, and the data and analysis, are provided below. As noted, the authors use London as a benchmark for comparison purposes, while Paris constitutes the main subject of study. Other systems are also mentioned ad hoc, to illustrate and reinforce important points.

Conceptualization

"Benchmarking" is a continuous and non-coercive process of comparison that catalyzes learning, improvement, and innovation (Zairy and Whymark 2000; Anand 2008). The concept was first developed in the late 1970s in the private sector and then expanded to other fields, including urban and transportation planning (Georgiadis 2012). Now, knowledge-sharing is among the main activities of the European Union. Under its sustainable mobility agenda, the EU has financed several benchmarking programs to improve urban transport services (Gudmundsson 2003). Benchmarking can focus on both positive outcomes and the processes needed to achieve those outcomes (Georgiadis 2012). Knowledge of the local context is key in a benchmark analysis, as contextual differences (economic, political, or social) often prevent the transfer of policies from a more advanced benchmark city – such as London, in this case. Even where a direct transfer of policies is not possible, benchmarking is still useful as it raises new issues and provides a fresh perspective to policy makers (Stead and Pojani 2014; Gudmundsson 2003).

The Benchmark: London

The River Thames and its tributaries flow through 16 boroughs of Greater London for about 70km. Thames has always been a major thoroughfare, supporting London's mercantile hegemony in the 18th century and catering to passenger services. The latter was crucial since

for centuries there was just one crossing point across the River Thames: the London Bridge. The use of the river as a means of public transportation increased rapidly after the introduction of steamboats in 1815, and ferry services were preferred to rail. By the end of the century, after the construction of the Tube begun in 1863, the river's popularity declined and the London steamboat company eventually declared bankruptcy (TL 2016). Later, throughout the 20th century, a dozen public and private ferry systems (river buses) were introduced, but only one operated for more than a couple of years: the RG Odell service (1946-1966) that connected Kew and Greenwich (30 minutes) (Buchanan et al. 2010). By the 1970s, with the demise of the RG Odell Company and the containerization of the shipping industry, the waterfront became obsolete.

However, in the 1980s, following the urban revival movement, the Docklands area was gradually redeveloped into a vibrant commercial, light industrial, and residential neighborhood. Revitalized riverside precincts, such as the O2 Arena and Canary Wharf, became international showcase projects. Consequently, interest in the river greatly renewed (TL 2015b). Initially, a limited private ferry service was set up in 1988 by a consortium of four Docklands property developers. It connected Canary Wharf, Central London, and Chelsea Harbour, at a time when public transportation options were very limited. In 1992, the system served 750,000 passengers. However, in the fifth year of operation, the economic downturn put its businesses sponsors in jeopardy and without alternative funding, the system collapsed (Long Branch 2016).

The current system, the Thames Clippers, began operation in 1999. Initially, it encompassed a minuscule fleet, employed existing, small and simple piers, and only provided limited commuter services (between Savoy and Greenwich). The waterborne line encountered success and ridership grew steadily (Long Branch 2016). By the mid-2010s, the lines multiplied to four (with 20 stops) and the fleet grew to 15 high-speed catamarans with a capacity of 65 to 200 passengers each. Expansion plans are ongoing and private financing has been secured for this purpose. Commuter services run from 6am to 9pm with a 20 minutes frequency during peak hours. Since 2009, the services have been integrated within the greater transport network of London, allowing passengers to use Oyster transit cards on the ferries as well.

Now commuter ferries are a beloved mode in London. This was demonstrated during an incident in 2009, when the Transport for London agency briefly removed the river artery from the transit map, provoking violent reactions (Long Branch 2016). The pace of growth in

passenger journeys is still rising. In 2014, the Thames Clippers served more than 10 million passengers (TL 2015b).

The Subject: Paris

The River Seine runs across the Greater Paris region for about 50km. Canals and tributaries, such as the River Marne, are also navigable. The width of the river varies from 30 to 200m. The Seine has served as a thoroughfare to transport goods and people since the Middle Ages. At the start of the 19th century, paddle steamers replaced horse-drawn boats, which had been in use for at least four hundred years. Navigation became more rapid and efficient and services became more frequent. To cope with increased traffic, mitigate floods, and control the water flow, canals and floodgates were built and the riverbanks were reinforced (Poudevigne et al. 2002). In 1886, the *Compagnie Générale des Bateaux Parisiens* was formed. At its peak in 1900, the CGBP operated four lines, offering services from 5am to 8pm with a 10 minute headway. Its boats could accommodate 300-400 passengers. But with the advent of rail transport, which attracted passengers en masse, the company was forced to close in 1917. After a final attempt (1921-1934), all passenger services on the river stopped. The attention switched from outmoded ferries to the promising state-of-the-art *Métro* - inaugurated in 1900 during the Paris World Fair (Duhau 2009). However, the Seine remained a major route for freight transport. Today, the *Port de Paris* remains the second largest fluvial port in Europe, processing over 21 million tons of freight annually. At the end of the 1980s, tourist ferry services were launched - the well-known *bateau-mouches* and other *vedettes*.

In 2007, a free ferry service for commuters (Mobil'Icade) was set up by a private development company (Icade) to connect Parc de la Villette and Millénaire, two new business and residential hubs along the Canal Saint-Denis. Following Mobil'Icade's popularity (4000 weekly commuters served), the concept of river-based public transport resurfaced on STIF's agenda. STIF (Syndicat des Transports d'Île-de-France) is the main transport authority in the Paris region (Île-de-France). In 2007, it proposed the introduction of Voguéo, a publicly run commuter ferry service, which was to resuscitate CGBP's old routes (3 lines and 31 stops). During its trial period (2008-2011), Voguéo ran between 7am and 8.30pm with a headway of 15-20 minutes, and carried 1,000 passengers/day on average (STIF 2012). At the end of the trial period, the company was tendered out. A single bid was received (by Batobus); the exorbitant asking price was ultimately rejected. This signaled Voguéo's end (STIF 2013). Since then, no effort has been made to reintroduce passenger ferry services along the Seine.

Data and Analysis

To examine the barriers to the creation of a passenger ferry system in Paris, as well as the potential lessons from London, online questionnaires were sent to public sector planners in Paris, who were occupied key positions in transport agencies. The sampling was snowball and the questionnaire included ten open-ended questions (see the Appendix). Five completed questionnaires were received (written in French, later translated into English). This was a representative sample across different types of key actors in state agencies. Given the focused nature of the study, and the dearth of specialists in passenger ferry transport (especially in a context where ferry transport has not been adopted), this sample was deemed sufficient for saturation, answering the research questions, and garnering insights into the issues under investigation. The responses were analyzed and interpreted based on authors' knowledge of the local context. The London case was researched through site visits and a thorough a thorough review of official reports and academic papers (including: Barker and Robbins 1974; Buchanan et al. 2009; TL 2013, 2015a, 2015b, 2016; ODA 2012; UITP 2015). The findings are reported below.

IV. Findings: Barriers to the Creation of a Commuter Ferry System in Paris

Most respondents were pessimistic about a possible re-introduction of commuter ferry services in Paris. The identified barriers included: (a) *funding constraints*; (b) *competition by other modes*; (c) *lack of political and institutional will*; (d) *lack of opportunity*; (e) *local legislation*; and (f) *technical issues*. The first three are common worldwide, as noted, while the last three are specific to Paris. The study revealed that, while the Thames Clippers experience was reviewed during the Voguéo trial, London is generally considered too different from Paris in terms of its transport finance and governance systems to serve as a role model. This type of attitude ("we are unique") is common among high-status capital cities (Pojani and Stead 2014). The barriers identified in Paris are discussed below, and compared to the case of London.

Funding Constraints

Fortuitous timing in terms of budget has, in some cases, ben key in implementing new ferry systems – apart from modest ones that do not require financial ingenuity (Tanko and Burke 2017). All the respondents agreed that the high cost of river-based public transport is the

principal factor that hinders implementation in Paris. While capital costs are lower than for rail, operating costs, including staff salaries, maintenance and repairs, energy consumption, and ticket subsidies are substantially higher. Staff and maintenance expenditures impose the greatest burden. To operate a unit and ensure the security and safety of its passengers, more staff is required on boats than in metros or buses. French law requires that a crew of at least two members (usually a pilot and a seaman) be present on vessels carrying more than nine passengers. A larger crew is required for vessels carrying more than 250 passengers (CERTU 2012). Crewing sizes have been a concern for water transit system design in other cities as well. Copenhagen modified its vessel design in order to obtain approval for single-crewing operations (Tanko and Burke 2017).

Given current technologies in use, fuel consumption is higher for boats than for buses (UITP 2015). Therefore, to maximize fuel efficiency, vessels must operate at high speeds, offer frequent service, and carry the upper limit number of passengers at all times. This is the approach adopted in London (Buchanan 2009). In France, on the other hand, allowed ferry speed limits are rather low (see later). In the case of Voguéo, the annual operating costs at the legal speed limit (only 5 knots in the inner city and 8 knots elsewhere) and given a high-frequency service were as high as 16.5 million Euros.

Finally, in France the population embraces a deep-rooted belief that transport infrastructure and services must be publicly funded. A typical Parisian commuter pays only 30% of the cost of his/her journeys, while STIF subsidizes the rest through funding it receives from local taxation and transfers upper levels of government (STIF 2015). Voguéo, for example, was far from self-sufficient in terms of operational income. Transport funding from the private sector is not forthcoming because its members feel that they are already overburdened by business taxes which are then used to carry out public works, including transport infrastructure. Under these circumstances, transport authorities are constantly under financial pressure. With the Grand Paris Express at the forefront of the political and institutional agenda until 2030, funds are scarce for operational subsidies to lower-priority modes such as river ferries.

By contrast, in London, in a context of a retreating government and limited public subsidies, alternative funding sources were sought since the inception of the ferry system (Buchanan et al. 2009). First, the system is private and based on a user-payer principle. Commuting Londoners pay much higher out-of-pocket fees than commuting Parisians. While this helps cover the operating costs more fully, it also imposes a significant burden on less affluent passengers (Prédali and Gloaguen 2014). In addition to user fees, the private sector is another

chief supporter of the Thames Clippers. Here, private businesses financed the construction of the piers and the upgrades of existing infrastructure – but only where the river ferry services were aligned with their strategies. In 2005, the Anschutz Entertainment Group acquired both the Millennium Dome (the entertainment complex O2) and the Thames Clippers, the fleet of which it enlarged with six new catamarans to improve access to the venue (Buchanan et al. 2010).

While the coordination of land use and transport development is extremely beneficial in planning, a typical conflict emerges when the private sector is involved in transport financing: its motivations are driven solely by profit while public transport is, at least in theory, a public good that serves unprofitable locations as well. Moreover, massive, privately-led redevelopment projects in waterfront locations have sparked major controversies. Critics have argued that urban vistas and nature (i.e., rivers) are public goods to which the entire population must have access. Also, the gentrification processes which some redeveloped waterfronts have experienced have been detrimental to impoverished long-term residents.

The London river ferry services receive additional income from small businesses (shops and cafés) which rent space on piers, and from advertisements on vessels and at piers. For example, recently, the Thames Clippers entered into a partnership with a credit company (MBNA) which funded the acquisition of two new vessels in return for highly-visible advertisement space on vessels (UITP 2015). These types of partnerships have not been considered in Paris. While the presence of small businesses might be convenient and desirable at piers, arguments have been advanced against covering public transport vehicles (including ferries) with visually polluting advertisements.

Competition by Other Modes

Paris encompasses a dense and high-performing network of land-based modes (Chakhtoura and Pojani 2016). Respondents highlighted the fact that ferry systems face fierce and unequitable competition here. If ferries are to cater to as many passengers as a bus or a metro, the headways between the vessels need to be short and the boat capacity needs to be large. But as noted, speed limits are low and strictly enforced in Paris. At the same time, land-based modes benefit from considerable attention and funding from the public sector. The Grand Paris Express project is entirely focused on metro upgrades and extensions with faster trains and state-of-the-art stations. The main project goal is to create several interlocking rings

which will connect suburban activity centers while bypassing the inner city. The meandering Seine and its tributaries are not aligned with the projected Grand Paris Express route.

A proposal to set up a river ferry service between Saint-Denis and La Défense, two prime activity hubs in the northern and western suburbs, became redundant after the approval of a new metro line (no. 15) between the two hubs. Given current speed limits for ferries, the metro line will provide a much faster service. On the negative side, the projected metro construction costs are much higher than the capital costs that a ferry line would have required. Finally, tourist boat operators constitute an opposing force too, in the case of Paris. They were entirely unenthusiastic about Voguéo's trial, fearing that, due to its cheap, subsidized tickets, Voguéo might attract tourists in addition to commuters, thus reducing their customer base in an unfair manner. In fact, the tender failed in part because of anti-lobbying on part of tourist boat operators. Similarly, in the short-lived linear ferry system introduced briefly in Shanghai, complaints from tourist boat operators were a reason for the lack of institutional support (Tanko and Burke 2017). These outcomes highlight the need to involve all stakeholders during decision-making processes and to design commuter ferry services in a way that does not significantly affect other river operators.

London has a similar, dense and high-performing land-based public transport network, as well as a network of tourist boats. Here too, the rise of the Thames Clippers coincided with the launching of the Crossrail project – another mega-project, which will add 118km of rail lines by 2026. However, these circumstances did not interfere with the Thames Clippers operations because the commuter ferry piers and routes were designed to serve a different set of customers. They were complementary rather than in competition with other transport services and therefore were integrated into, and supported, the wider network. This points to institutional factors at play, which supported the adoption of ferry systems in London and acted against those in Paris.

Lack of Political and Institutional Will

Participants noted that Parisian politicians and transport authorities lack interests in ferry transport. At the regional scale, STIF has set ambitious targets in achieving transport sustainability by 2020 (Chakhtoura and Pojani 2016). However, since Voguéo's abandonment, its focus has shifted to other alternative modes, such as cycling, walking, carpooling, and carsharing - though ferry-based freight transport is still strongly supported (STIF 2012). Similarly, at the local scale, active transport (walking and cycling) rather than ferry transport is the focus of sustainability initiatives (Chakhtoura and Pojani 2016). For

example, the City of Paris has been expanding the network of segregated cycling lanes and has imposed a car ban along the river banks. This situation illustrates that trials (such as Voguéo's) must be carefully designed to succeed because failure is followed by disappointment or loss of faith in a particular project or mode, which is difficult to overcome.

Another reason for the failure to implement commuter ferry services is the complex and multi-layered of transport governance in France. While longstanding transport services (i.e., land-based ones) are managed efficiently within the existing system, relatively novel (or rediscovered) concepts such as commuter ferry services do not fit well within the existing administrative network. For example, the Port de Paris, Voies Navigables de France (Navigable Routes of France), and STIF maintain separate operations. As noted, STIF is currently focused on the rail-based mega-project Grand Paris Express. The two public authorities in charge of the Seine, Port de Paris and Voies Navigables de France deal with freight transport and leisure activities. But the official cooperation of these entities would be necessary for the construction and maintenance of pier infrastructure and the coordination of ferry routes. The land-use department within the City of Paris is also unaccustomed to take into consideration river access and ferry routes when determining redevelopment or new-growth areas. The Métropole du Grand Paris (a new metropolitan body), is still in its infancy. Even in the long-term it appears that it will have little power over regional transport planning.

Interestingly, the concept of using ferries to deliberately connect locations (and potentially disadvantaged communities) that are far from existing high-capacity transit lines did not come up in the research. This was a clear objective of the New York East River Ferry and Citywide Ferry system developments, and an element of their success in both securing ridership and in stimulating value uplift (Tanko and Burke 2017).

By contrast to Paris, the London's and other cities' commuter ferry projects benefited from strong political leadership and support from the start, which provided credibility and momentum (Tanko and Burke 2017). In 1981, governmental impetus led to the formation of the London Docklands Development Corporation (a quasi-autonomous non-governmental organization), which was instrumental in regenerating the depressed Docklands area of east London. While initially controversial, today it is generally regarded as an exemplar of large-scale regeneration. Infill development in the Docklands, in the absence of many transit options, made ferry services not only desirable but absolutely necessary. Other clear evidence of institutional and political support appeared in 1997, when John Prescott, the Secretary of State for the Environment, Transport and the Regions at the time, launched the Thames 2000

plan. At a cost of £21 million, the initial plan aimed at regenerating the river and its surroundings and promoting it as a key transport artery. It financed the construction of five piers, as well as the Millennium Dome – now the O2 Arena (Long Branch 2016; Buchanan et al. 2010).

In 2013, Boris Johnson, the Mayor of London at the time, acted as a "political champion" by launching the River Action Plan. This was the first time that an official transport plan was entirely dedicated to the river. It set a clear target of 12 million passenger journeys by 2020 (including leisure tours), as well as the principal actions needed to reach this target, including pier construction, passenger information, and integration with the existing transport network. It also allocated a fund of £10 million for improvements. The plan enabled public and private stakeholders to coordinate and align their interests, as it was closely linked to the broader economic plan for London. For example, riverside "Opportunity Areas" as designated in the Mayoral Plan are expected to add 100,000 new homes and 220,000 new jobs by 2031, which ferry transport access would benefit in a major way (TL 2013).

Moreover, major efforts at institutional coordination have been made in London. As it is often the case for other public transport modes, different tasks are overseen by different organizations. For example, the London River Services, established in 1998 as a branch of Transport for London, overseas the network of river ferry services, the piers, and the ferry licensing system. Transport for London owns the piers while Anschutz Entertainment Group, a private company, operates the Thames Clippers, as noted. The Port of London Authority is responsible for safety and promotion of ferry use (TL 2015a). But since 2009, in preparation for the Olympics, these stakeholders, along with representatives from the riparian boroughs, have been assembled in the River Concordat Group, a steering group. This has been a major step in coordinating services along the river, and it has provided ferry supporters with more weight in transactions with land-based operators (TL 2013, 2015b).

Lack of Opportunity

In London, two major international events in 2012 had a catalytic role and contributed to putting the Thames at the forefront of the political agenda: the Diamond Jubilee of Queen Elizabeth II and the Summer Olympics. To celebrate the first, a spectacular parade of 670 boats was organized which kindled the interest of the public in river transport. Later that year, a vast number of spectators (up to 50,000 per day) travelled to the Olympic venues via the Thames (TL 2013). The Olympic Delivery Authority integrated river services into its

transport plan for the event and subsidized the development of new pier infrastructure in London (ODA 2012). Ferry supporters capitalized on the enthusiasm surroundings these events, and the landmark River Action Plan was launched the following year.

In Paris, such opportunity has not presented itself yet but respondents suggested that it might in the mid-term future: the city might host the 2025 Universal Exhibition and the 2024 Summer Olympics (the two bids are ongoing). The local Olympic committee has proposed to locate the venue 7km north of the inner city, with access to the river, while all proposed sites for the Universal Exhibition are in proximity of water bodies.

Local Legislation

As mentioned, the respondents identified French rules regarding ferry speed limits as a barrier that prevents any system from being competitive (STIF 2012). The original purpose of the speed limits was to ensure that a variety of activities could be accommodated along the Seine. These restrictions were also meant to ensure safety of navigation and shoreline preservation (wash from vessels). However, the limit was set at a much lower level than in other ferry systems and has not been adjusted since (see Table 1). In Brisbane, the on-water speed restrictions in were lifted significantly to allow the local ferry system to be introduced, with the vessels proving to be low wash at high speed (Tanko and Burke 2017).

Another temporary barrier in Paris is a requirement for all vessels and piers to be handicapped-accessible. (This requirement applies to all other transport modes since 2005.) While universal design is crucial, the infrastructure has yet to be upgraded. Much of the existing infrastructure does not comply in full with the law and is therefore unusable (CERTU 2012). Finally, restricted navigation during floods, which are becoming more frequent with climate change, weakens the viability of ferries as a commuter transport mode (PP 2009). While French legislation is too rigid, London authorities have been more flexible, have adjusted regulations, and embraced opportunities as they have arisen, making improvements and upgrades to infrastructure along the way.

Technical Issues

Some respondents pointed to technical difficulties in increasing ferry traffic along the Seine. In the Greater Paris region, six locks preclude smooth navigation and limit the choice of routes. Additionally, the river already accommodates numerous activities, including freight transport, nautical sports, and tourist cruises, while the riverbanks accommodate housing,

commerce, and industries. The piers are already operating almost at capacity. Faced with increased demand for leisure activities, the Port de Paris has upgraded the pier facilities in recent years but further improvements are needed (PP 2009). However, the London case demonstrates that technical issues are among the easiest to resolve, given sufficient funding and political and institutional will. Cohabitation of different activities on large rivers such as the Seine or Thames has been possible all along history. Previous studies confirm this observation (Tanko and Burke 2017).

V. Conclusion

The timing may be propitious for the introduction of commuter ferry services in Paris (given future mega-events and the ongoing Grand Paris Express project – which however, has no consideration for links with the waterway). But many barriers persist. Funding constraints are exacerbated by the inability or unwillingness of the public sector to seek private sector funding. The competition between ferries and land-based modes is fierce and unequitable. Strict local regulations force ferry operators to maintain low speeds and thus be even less competitive vis-à-vis rail. Political and institutional support of ferry transport has not been forthcoming, nor has it been spurred by opportunities such as major sport or culture events. Finally, some technical issues are present, having to do with the traffic volume on the river and the state of ferry transport infrastructure.

As the literature and the London benchmark case illustrates, these barriers are not insurmountable. However, it is well possible that the best location for commuter ferry services is not the Paris core, as in the failed Voguéo attempt, but rather suburban areas, especially those which have been identified as future development clusters in the Grand Paris Express project. However, this concept would require in-depth economic, environmental, and social impacts studies. More generally, additional research on European river ferry services is necessary. Large cities, in particular, which suffer from congestion the most, need to become better acquainted with each other's' successes and failures in order to fulfil the potential of their river assets.

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Appendix

Survey questions:

- Over the last years, Paris has developed river-based transport for tourists and more recently freight. Why not passenger/commuter service?
- What are the main barriers? Please discuss issues related to cost, technical design, user perceptions.
- How about opportunities? Do you think there are good opportunities for river-based transport services in Paris?
- Why is river-based public transport absent from the Grand Paris Express (the new masterplan)?
- When it comes to river-based public transport, does Paris have a role model or benchmark city (in Europe or further afield)?
- Have you looked at how London set up a river-based public transport system? Why or why not?
- If yes: what information and/or exchange activities have taken place? Which agencies were involved? Will there be follow-up activities? Please explain.
- What is specific to Paris compared to other cities with river based public transport services?
- What some of the difficulties that river-based public transport presents in terms of infrastructure and operations? Can these be overcome?
- What are some of the advantages of river-based public transport in comparison to other modes? Please discuss issues of cost, time savings, pollution, etc.

A study on linear river ferry services

A case study of Paris

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